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A PRELIMINARY REVISION OF THE LEPIDOPTEROUS FAMILY NOTODONTIDÆ.

BY B. NEUMOEGEN AND HARRISON G. DYAR, S. B., A. M.

The following revision is continuous with that being published by us in the journal of the New York Entomological Society, including the series of families formerly classed as "Bombyces." Mr. Dyar has prepared the present paper from the material in Mr. Neumoegen's collection, and has recently gone over a large part of the species with Dr. A. S. Packard, to whom our thanks are due.* The manuscript has thus become complete, and we have concluded to present this family separately, thus saving space in the New York journal.

The Notodontidæ belong to the group of specialized frenulum conserves in which the cubitus (median vein) is apparently three branched. Their relations may, perhaps, be best exhibited by a synopsis of groups of the Lepidoptera, which is drawn up on the lines suggested by Prof. J. H. Comstock.†

We have used two systems of nomenclature of the veins of the wings, and present the following table, showing the corresponding name for each vein :

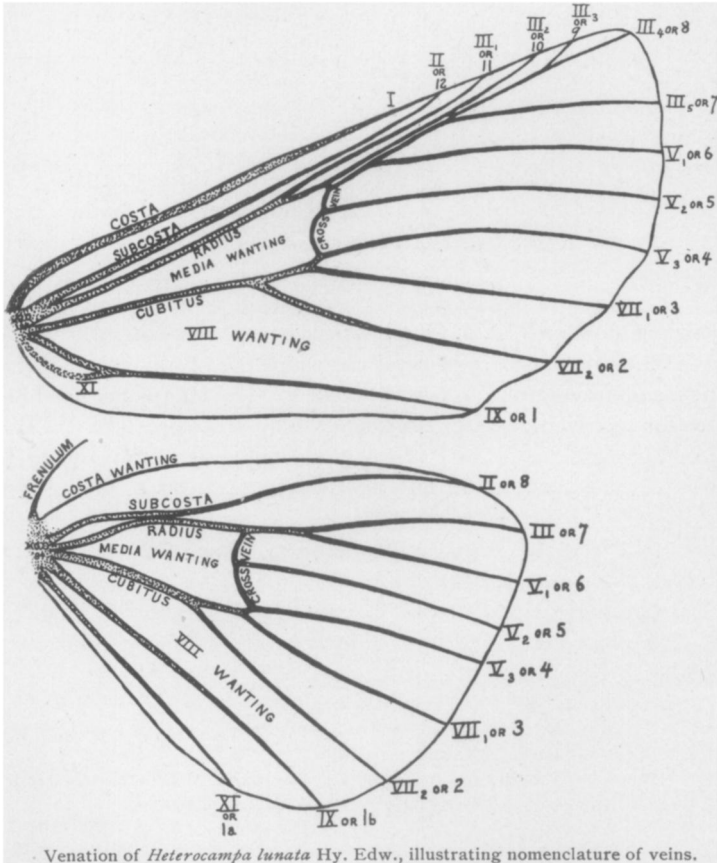
HERRICH-SCHAEFFER SYSTEM.		REDTENBACHER-COMSTOCK SYSTEM.	
<i>Fore wings.</i>	<i>Hind wings.</i>	<i>Fore wings.</i>	<i>Hind wings.</i>
1, vein 1a	1, vein 1a	1, vein ix	1, vein xi
2, vein 1b	2, vein 2b	2, vein viii	2, vein ix
3, median vein	3, vein 1c	3, cubitus or vii	3, vein viii
4, vein 2	4, median vein	4, vein vii ₂	4, cubitus or vii
5, vein 3	5, vein 2	5, vein vii ₁	5, vein vii ₂
6, discoidal vein	6, vein 3	6, media or v	6, vein vii ₁
7, discal cross-vein	7, discoidal vein	7, cross-vein	7, media or v
8, vein 4	8, discal cross-vein	8, vein v ₃	8, cross-vein
9, vein 5	9, vein 4	9, vein v ₂	9, vein v ₃
10, vein 6	10, vein 5	10, vein vi ₁	10, vein v ₂
11, subcostal vein	11, vein 6	11, radius or iii	11, vein vi ₁
12, vein 7	12, subcostal vein, or vein 7	12, vein iii ₅	12, radius or iii
13, vein 8	13, vein 8	13, vein iii ₄	13, subcosta or ii
14, vein 9		14, vein iii ₃	
15, vein 10		15, vein iii ₂	
16, vein 11		16, vein iii ₁	
17, vein 12		17, subcosta or ii	
18, costal edge.		18, costa or i	

* We would refer, to Dr. Packard's monograph for a fuller treatment of the Notodontidæ than is possible in the limits of this paper. We deem ourselves fortunate in having been able to consult with Dr. Packard concerning the synonymy of several of the species, which is the better established by a consensus of opinion. In a few instances, notably in the rank to be assigned to certain local forms, we have felt obliged to differ from Dr. Packard.

† Wilder Quarter Century Book, pp. 37-113 (1893).

Synopsis of the Suborders of the Lepidoptera.

- Wings united by a modification of the base of primaries; venation essentially similar in the two wings.....**JUGATÆ.**
- Wings united by a modification of base of secondaries; venation dissimilar in the two wings.....**FRENATÆ.**



This division is sharp, not complicated by any intergrading forms. It should be followed directly by a synopsis of families in each suborder, for we have not found it possible to define a series of superfamilies with satisfactory exactness. However, several divisions of the Frenatæ may be recognized, though they are not sharply separated.

Suborder FRENATÆ.

Frenulum usually distinct, single in ♂, usually divided and shorter in ♀; rarely abortive.....*Frenulum conservers.*

Frenulum absent, or very rudimentary; replaced by an expanded area at base of secondaries, often containing supplementary humeral veins.

Frenulum losers.

The frenulum conservers are well distinguished in general; but several genera occur in which the frenulum is much reduced or even absent, while in some families included in the frenulum losers there is a rudimentary frenulum. These divisions of the Frenatæ do not represent separate lines of descent, as is the case in the division into suborders since the Lasiocampidæ are separated from their allies in the Arctiid series.

The *Frenulum conservers.*

Primaries with two, or secondaries with three anal veins, usually complete; median often well preserved.....*Generalized frenulum conservers.*

Primaries with one, and secondaries with not more than two anal veins, except rarely traces of a third.....*Specialized frenulum conservers.*

These divisions are fairly well marked. The Castniidæ, Cossidæ, Eucleidæ (= Limacodidæ), Pyromorphidæ, Megalopygidæ (= Lagoidæ), Psychidæ and many of the microlepidoptera fulfill the characters of the first division; but this does not appear to be the case with all the microlepidoptera, nor with the Sesiidæ. On the other hand, our species of *Phryganidia* (Diptidæ) shows a portion of a third anal vein on the hind wings.

The families intended to be included by the term "specialized frenulum conservers" may be separated by the following table:

Secondaries without distinct intercostal cell.

Cubitus of primaries apparently 4-branched.

The radius and subcosta of secondaries united for about one-third the length of cell or more.

These veins completely coalesced to tip.....EUCHROMIIDÆ.

Not completely coalesced (apparently so in a few instances).

{ ARCTIIDÆ.
LITHOSIIDÆ.

The radius and subcosta free toward base, except in a few instances.

Vein v_1 arising close to, or in conjunction with radius on secondaries.

Cubitus of secondaries apparently 4-branched; ♂ antennæ pectinate.

{ PERICOPIDÆ.
LIPARIDÆ.

Cubitus of secondaries 3-branched, or 4-branched; antennæ often

simple; ocelli often present..... { NOCTUIDÆ.
AGARISTIDÆ.

- Vein v^1 of secondaries arising apparently from discal cross-vein; subcosta running close to radius beyond cell, or even joining it.
DREPANIDÆ.
- Branches of radius of primaries all free.....**THYRIDÆ.**
- Cubitus of primaries apparently 3-branched.
- Veins v_3 and v_{ii} arising independently.
- Body slender, wings fragile, finely scaled..... { **GEOMETRIDÆ.**
BREPHIDÆ.
- Body larger and robust.
- Vein v_1 of secondaries joined to radius before apex of cell.
CYMATOPHORIDÆ.
- Vein v_1 joined at or beyond end of cell.....**NOTODONTIDÆ.**
- Veins v_3 and v_{ii} coalesced at base.....**DIOPTIDÆ.**
- Secondaries with a distinct inter-costal cell; wings usually elongate.
SPHINGIDÆ.

Family NOTODONTIDÆ.

Synopsis of Subfamilies and Genera.

- Outer margin of primaries excavate below apex; accessory cell on a long stalk.
APATELODINÆ.
- Outer margin entire, or at most moderately excavate between the terminations of the nervules.
- Antennæ of ♂ bipectinated to the tip or simple.....**NOTODONTINÆ.**
- Antennæ of ♂ with distinct pectinations.
- Primaries with an accessory cell.
- A tufted tooth on internal margin of primaries.....**Notodonta.**
- Internal margin entire.
- Pectinations of antennæ long.
- Thorax with large central tuft.....**Nadata.**
- Thorax untufted.....**Hyparpax.**
- Pectinations moderate or short.
- Costa of primaries straight, apex rectangular.....**Symmerista.**
- Costa convex, apex rounded.....**Nerice.**
- Primaries without accessory cell (rarely a small one in one *Cerura*).
- Internal margin entire.
- Vein 5 (v_2) of secondaries distinct.....**Cerura.**
- Vein 5 (v_2) of secondaries weak or absent.
- Tip of abdomen with a brush-like tuft.....**Melalopha.**
- Tip of abdomen simple..... { **Gluphisia.**
Eumelia.
- A tufted tooth on internal margin of primaries.....**Pheosia.**
- Antennæ of ♂ simple, without distinct pectinations.
- A tufted tooth on internal margin of primaries.
- Accessory cell absent.....**Lophodonta.**
- Accessory cell present.....**Lophopteryx.**
- Internal margin entire.
- Accessory cell present.....**Datana.**
- Accessory cell absent.....**Nystalca.**

Antennæ of ♂ pectinated for basal two-thirds or more, the tips bare.

HETEROCAMPINÆ.

A slight tooth on internal margin of primaries.....**Ianassa.**

Internal margin entire.

Accessory cell present.

Antennæ of ♀ simple.

Antennæ of ♂ pectinated for basal three-fourths or less.

A vertical tuft on the head; black spots above internal angle of primaries.....**Dasylophia.**

Head without a distinct erect tuft.

Terminal abdominal hairs gathered into a more or less conspicuously bifid tuft.....**Schizura.**

Anal tuft not normally bifid.

Accessory cell moderately long.....**Euhyparpax.**

Accessory cell reaching half way to apex of wing.

Wings elongate, more than twice as long as broad.

Heterocampa.

Wings shorter, twice as long as broad, or less.....**Cecrita.**

Antennæ of ♂ pectinated nearly to tip.....**Misogada.**

Antennæ of ♀ pectinated.....**Litodonta.**

Accessory cell absent; veins 6-10 stalked (v_1 joint to radius).

Head moderately prominent.....**Macrurocampa.**

Head sunken in the thorax.....**Ellida.**

Subfamily APATELODINÆ.

Genus **Apatelodes** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 353.

1891.—Kirby, Cat. Lep. Het. vol. i, p. 851.

Synopsis of Species.

Outer margin entire below vein 5 (v_2).....**torrefacta.**

Outer margin deeply excavate between the terminations of veins...**angelica.**

A. torrefacta Abbot and Smith.

1797.—Abbot and Smith, Lep. Ins. Ga. vol. ii, pl. 76. *Phalæna*.

var. **floridana** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 13.

Ash-gray, clouded with smoky-brown on the fore wings, with transverse anterior and transverse posterior, narrow, waved, deep brown lines, and between them two others of smoky-brown, often faint. Within the transverse anterior line on internal margin is a large, deep brown patch, partially divided by ashen scales on vein 1 (ix). Between veins 6 and 7 (iii_5 and v_1), near the margin, is a triangular or quadrate, white, subhyaline spot. Secondaries dull red, with an outer whitish line, marked on the internal margin by two deep brown dashes. Posterior edge of thorax and tip of abdomen deep brown. Expanse, ♂ 40 mm.; ♀ 50 mm.

Hab.—Atlantic States.

The varietal form *floridana* is more reddish with markings obscured.

A. angelica Grote.

1864.—Grote, Proc. Ent. Soc. Phil. vol. iii, p. 322. *Parathyris*.
hyalinopuncta Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 354. *Apatelodes*.
 var. **indistincta** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 13.

Ash-gray, transverse anterior and transverse posterior lines consisting of rows of brown, venular points, the two intermediate lines deep clay-brown, broad, diffused. Between veins 4-5 (v_3-v_2) and 5-6 (v_2-v_1) a quadrate, white, hyaline spot, the lower one smaller. Secondaries pale brownish, with an inner brown, and outer pale obscure line. Thorax gray, with central brown crest. Abdomen thickly dotted with reddish brown dorsally. Expanse, ♂ 42 mm.; ♀ 47 mm.

Hab.—Atlantic States.

The variety *indistincta* is more reddish than the typical form, and the markings are fainter.

Subfamily NOTODONTINÆ.

Genus **Notodonta** Ochseneheimer.

1810.—Ochseneheimer, Schmett. Eur. vol. iii, p. 45.

Peridea Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. Pt. ii, p. 32.

Synopsis of Species.

Size large; external margin of primaries excavate between the veins. **elegans**.

Size smaller; external margin entire.

Fore wing shaded with ocher and brown along internal and external margins.

Thorax dark ash-gray..... **stragula**.

Thorax blackish gray..... **pacifica**.

Fore wing without ocherous brown marks, but with longitudinal black dashes before internal angle.

Primaries yellowish at base and disc..... **georgica**.

Primaries uniform stone-gray..... **tortuosa**.

N. elegans Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. Phil. 1884, p. 285. *Lophopteryx*.
 var. **grisea** Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. Phil. 1884, p. 286. *Lophopteryx*.
notaria Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Notodonta*.

Gray, shading into chocolate-brown at base of fore wings. A silvery white mark on vein 1 (anal vein) at base; internal margin between tooth and base ocherous. A series of obscure, subterminal, venular, black dashes, most evident at apex. Secondaries white, with gray patch at internal angle divided by a white line. Thorax gray, abdomen brownish. Expanse, 50 mm.

Hab.—Mountains of New York and New England (Canada), Michigan, Rocky Mountain region.

The var. *grisea* differs in lacking the brown shade at basal part of fore wings.

N. stragula Grote.

1864.—Grote. Proc. Ent. Soc. Phil. vol. iii, p. 93.

race **manitou** Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Jour. N. Y. Ent. Soc. vol. i, p. 35.

Thorax and fore wings slate-gray, replaced by ocherous and brown along internal margin and subterminally. Two deep brown, parallel streaks at base, below median vein and on internal margin respectively. Transverse anterior line waved, ocherous, bordered with brown. A linear discal mark surrounded with pale. Transverse posterior line obsolete, except at internal margin. Subterminal line ocherous, waved. Hind wings white in the male, brownish gray in the female, darker along the outer border. Expanse 40 mm.

Hab.—Atlantic States, westward.The race *manitou* differs in its much paler colors.*Hab.*—Rocky Mountain region.**N. pacifica** Behr.

1892.—Behr., Proc. Cal. Acad. Sci. (2) vol. iii, p. 206.

Hab.—Mountains of California and Pacific Northwest.Closely allied to *stragula*, but darker throughout.**N. georgica** Herrich-Schäffer.

1855.—Herrich-Schäffer, Ausser. Schmett. i, f. 384.

Pale gray, with yellowish tinge at base of fore wings, and irrorate with black. T. a. and t. p. lines distinct, black, dentate. A linear black discal dot; tooth black. A series of subterminal, intervenular, black dashes, obsolete centrally; the one between veins 1 and 2 (anal and vii₂) reappears inside t. p. line. Fringe spotted with black. Hind wings white. Expanse 40 mm.

Hab.—Atlantic States, westward.**N. tortuosa** Tepper.1881.—Tepper, Bull. Brook. Ent. Soc. vol. iv, p. 2. *Drynobia*.

Much like *N. georgica*. Primaries and thorax dark stone-gray, slightly tinged with yellowish. T. a. and t. p. lines as in *georgica*, but uniformly black, very faintly whitish bordered; a basal and subapical longitudinal black dash and one near internal angle, discal dot black; white dash at base of wing and on side of thorax. Secondaries whitish, with brownish tinge. Expanse 35 mm.

Hab.—Rocky Mountain region.Genus **Nadata** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1062.

|| *Alastor* Boisduval.

1869.—Boisduval, Ann. Ent. Soc. Belg. vol. xii, p. 87.

Synopsis of Forms.

Color buff, orange-buff to red.

General color buff.

Excavations on external margin filled in with white... **gibbosa**.Fringe uniformly ocherous... var. **doubledayi**.Color deep orange-red... race **rubripennis**.

Color straw-yellow.

Wings without black shades... race **oregonensis**.A black shade at end of cell... var. **behrensi**.

N. gibbosa Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 82. *Phalæna*.
var. **doubledayi** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 356. *Nadata*.
race **rubripennis** Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Jour. N. Y. Ent. Soc. vol. i, p. 34.
race **oregonensis** Butler.

1881.—Butler, Ann. Nat. Hist. (5) vol. viii, p. 317.
var. **behrensii** Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 49.

Buff, orange tinted, sometimes irrorate with brown scales. T. a. line curved, t. p. line straight, oblique, narrow, deep brown, faintly edged with whitish. Two rounded, white, superposed, discal spots, preceded by a clear buff space. Secondaries paler toward the costal edge.

Hab.—Atlantic States, westward.

The race *rubripennis* differs in the deep orange-red coloration.

Hab.—Rocky Mountain region.

The race *oregonensis* differs in its paler color.

Hab.—California and the Pacific Northwest.

Genus **Hyparpax** Hübner.

1824.—Hübner, Samml. ex. Schmett. ii.

Sangata Walker.

1860.—Walker, Cat. Brit. Mus. Pt. xx, p. 265.

Synopsis of Species.

Median space clear yellow **aurora.**

Median space irrorate, or covered by reddish scales.

Fore wing pink, with only a line of yellow..... **venus.**

Fore wing pale dull ochereous with lines and irrorations of brownish red.

perophoroides.

H. aurora Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 87. *Phalæna*.
rosea Walker.

1860.—Walker, Cat. Brit. Mus. Pt. xx, p. 265. *Sangata*.
venusta Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 574. *Dryocampa*.

Pale yellow, shaded with pink. T. a. line bent at right angles on median vein; t. p. straight, oblique, a linear discal mark, all pink. Basal and terminal spaces and costa largely overspread with pink. Secondaries white. Expanse 30 mm.

Hab.—Atlantic States from New York to Florida.

H. venus Neumoegen.

1892.—Neumoegen, Can. Ent. vol. xxiv, p. 226.

Thorax and primaries dark pinkish red, darker than *aurora*. T. p. line straight, narrow, yellow; faint trace of angulated t. a. line. Secondaries white,

tinged with pink outwardly and on fringe. Abdomen pale clay-yellow, with the tip pink. Expanse 35 mm.

Hab.—Colorado.

H. perophoroides Strecker.

1877.—Strecker, Proc. Acad. Nat. Sci. Phil. 1876, p. 152. *Cosmia*.
aurostriata Graef.

1888.—Graef, Ent. Amer. vol. iv, p. 58. *Hyparpax*.

var. **tyria** Slosson.

1894.—Slosson, Ent. News vol. v, p. 198.

Very pale ochereous, all the margins of fore wing deep brownish red. Wing evenly irrorate; lines as in *aurora*, narrow, even, the discal streak sometimes united with the angle of t. a. line. Secondaries white, the outer third tinted dark red. Expanse 30 mm.

Hab.—Florida.

The variety has the wings heavily irrorate.

Genus **Symmerista** Hübner.

1822?—Hübner, Verz. bek. Schmett. p. 248.

Edema Walker.

1855—Walker, Cat. Brit. Mus. Pt. v, p. 1028.

Synopsis of Species.

A white costal edging **albifrons**.
No white edging..... **packardii**.

S. albifrons Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 8. *Phalaena*.

var. **albicosta** Hübner.

1804?—Hübner, Eur. Schmett. Noct. f. 440. *Noctua*.

Ash-gray, shaded with brownish centrally on fore wings. The white costal mark on outer half of wing is expanded into a rounded projection beyond the linear discal dot; lines strigose, confused; a subterminal series of transverse dashes. Secondaries pale gray. The head, collar and central part of thorax, are pale ligneous brown, the whole patch bordered with black. Expanse 30 mm.

The var. *albicosta* differs in having the projection from the costal band tooth-like instead of rounded.

Hab.—Atlantic States, westward.

S. packardii Morrison.

1875.—Morrison, Ann. Lyc. Nat. Hist. N. Y. vol. xi, p. 92. *Edema*.

Brownish cinereous, as in *albifrons*. Costal mark indicated by a pale shade. T. p. line and t. a. line black, geminate, waved. Subterminal row of dashes and discal spot as in *albifrons*. Expanse 31 mm.

Hab.—Texas.

Genus **Nerice** Walker.

1855.—Walker, Cat. Brit. Mus. vol. v, p. 1076.

N. bidentata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1076.

Thorax silver-gray, with a square, deep brown patch on the anterior part and head. Fore wings silver-gray along internal margin, the costal half brown, shading into deep brown where it joins the gray, and produced downwards in two teeth at the location of the t. a. and t. p. lines. The t. p. line is indicated on costal margin, and there is an oblique brown dash on the outer margin crossing vein 5. Secondaries brownish gray. Expanse 35 mm.

Hab.—Atlantic States.

Genus **Cerura** Schrank.

1802.—Schrank, Fauna Boica ii (2), p. 155.

Andria Hübner.

1810?—Hübner, Tent. p. 1.

Harpyia Ochseneimer.

1810.—Ochseneimer, Schmett. Eur. vol. iii, p. 19.

Pania Dalman.

1823.—Dalman, Anal. Ent. p. 92.

Dicranura Boisduval.

1829.—Boisduval, Ind. Meth. p. 54.

Synopsis of Species.

Primaries crossed by about eight angularly undulate black lines.

Secondaries black.....**multiscripta.**

Secondaries white.....**scitiscipta.**

Primaries crossed at basal third by a broad gray band, sometimes absent.

One or more transverse, dentate lines on discal area before the subterminal shade.

Transverse band gray, pulverulent, bordered by black and orange scales.

Fore wings pale cinereous.....**occidentalis.**

Fore wings white.

Transverse band broad.....**scolopendrina.**

Transverse band narrow or broken..var. **albicoma.**

Band even blackish, without distinct borders..**modesta.**

A double row of venular dots forming an ellipse, sometimes obsoletely connected.....**borealis.**

A single row of venular dots preceded by a rigid shade line, or discal area immaculate.

Fore wings dark cinereous.....**cinerea.**

Fore wings pale cinereous.....var. **cinereoides.**

Fore wings nearly white.

Transverse gray band distinct.....var. **placida.**

This band very obscure or absent.....var. **nivea.**

C. multiscripta Riley.

1875. Riley, Trans. St. Louis Acad. vol. iii, p. 241.

White; thorax faintly greenish, hind wings blackish. Posterior edge of collar and two transverse rows of dots on thorax black; abdomen banded with blackish above. Wings crossed by eight narrow, dentate, black lines, with a sea-green shade between the lines 2 and 3 and 7 and 8, the latter on costal half. A terminal row of black dots. Expanse, ♂ 25 mm.; ♀ 30 mm.

Hab.—Atlantic States, westward.

C. scitisscripta Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 408.

candida Lintner.

1878.—Lintner, Rept. Mus. N. Y. xxx, p. 199.

Shining white, marked like *multiscripta*, but without greenish shades. T. a. band absent, or partly present, composed of about four irregular ringlets: discal spot absent, or a ringlet. T. p. band of two or three dentate black lines with black mark at costa and internal angle. Black dots at base of fringe, varying in size. Secondaries white, or shaded with brownish along the veins. Expanse 30—40 mm.

Hab.—Texas, Kansas.

C. occidentalis Lintner.

1878.—Lintner, Rep. Mus. N. Y. xxx, p. 194.

Very pale cinereous; t. a. band edged by darker scales. The basal dots and median line distinct. T. p. line dentate, with its costal band present. Terminal dots large.

Hab.—Atlantic States.

C. scolopendrina Boisduval.

1870.—Boisduval, Ann. Soc. Ent. Belg. vol. xii, p. 86. *Dicranura*.

aquilonaris Lintner.

1878.—Lintner, Rep. N. Y. Mus. xxx, p. 195. *Cerura*.

var. *albicoma* Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. 1884, p. 284.

White, marked much as *occidentalis*, but the basal dots less distinct. T. a. band defined by black lines and orange scales, varying much in width. Secondaries white with terminal and discal dots, and often traces of a mesial band.

Hab.—Canada, Rocky Mountains, California and the Pacific Northwest.

C. modesta Hudson.

1891.—Hudson, Can. Ent. vol. xxiii, p. 197.

Very pale cinereous, all the dots reduced. T. a. band and subapical bands broad, uniform, almost bluish black. All the marks more smooth and smoky than in *occidentalis*, and the fine lines and dots indistinct.

Hab.—Northern Atlantic States.

C. borealis Guérin.

1829.—Guérin, Icon. r. anim. pl. 88, f. 5. *Dicranura*.

White, centre of thorax black, and abdomen black banded. Basal and terminal dots distinct. T. a. band very broad, black, edged with black lines and orange scales. T. p. costal shades runs narrowly across the wing; central dentate line between the bands broken up into distinct dots which form a regular ellipse. Hind wings smoky outwardly with terminal and discal dots.

Hab.—Atlantic States.

C. cinerea Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 407.

var. **cinereoides** Dyar.

1890.—Dyar, Can. Ent. vol. xxii, p. 253.

var. **placida** Dyar.

1892.—Dyar, Psyche vol. vi, p. 291.

var. **nivea** Neumoegen.1891.—Neumoegen, Can. Ent. vol. xxiii, p. 124. *Heterocampa*.1893.—Dyar, Ent. News vol. iv, p. 35. *Cerura*.*paradoxa* Behr.

1885.—Behr., Bull. Cal. Acad. Sci. vol. i, p. 64 (no desc.).

1892.—Dyar, Psyche vol. vi, p. 291.

meridionalis Dyar.

1892.—Dyar, Psyche vol. vi, p. 291.

1893.—Dyar, Ent. News vol. iv, p. 35.

Dark cinereous to white, the broad, doubly concave t. a. band and subapical t. p. band dark, or in the pale forms pale gray, or even absent or represented by scattered black scales. Both bands edged with orange scales; a median shade line and venular row of dots preceding the t. p. band. A curved row of dots on the veins before t. a. band, and one on median vein (cubitus) at base. Terminal dots variable in size. Expanse 37—45 mm.

Hab.—North America, the dark forms in the Atlantic States, the pale form in California, and the white in the Rocky Mountain region.

Genus **Melalopha** Hübner.

1810.—Hübner, Tent. p. 1.

Ichthyura Hübner.

1822?—Hübner, Verz. bek. Schmett. p. 162.

Clostera Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. vol. ii, p. 12.

Synopsis of Species.

Lines on primaries not anastomosing, free.

Size large, with a distinct, large, brown, apical shade.....**albosigma**.

Size smaller, apical region not distinctly discolored.

Wing uniform in tint.....**alethe**.

Wing shaded with darker blotches.

Pale, the blotches contrasting**brucei**.Dark, more uniformly obscured.**multnoma**.

Lines anastomosing, the second joining the third.

Lines uneven, the basal toothed.

Subapical patch pale, yellowish, the s. t. dots preceded by streaks.

strigosa.

Patch yellowish to rusty brown, without streaks.

Size moderate; thoracic mark present.....**apicalis**.Larger; no thoracic mark**inornata**.

Lines nearly even, the basal one dislocated, but not toothed.

Fourth line white on costa**inclusa**.Fourth line not distinctly white.**jocosa**.

M. albosigma Fitch.1859.—Fitch, Rep. Ins. N. Y. v, p. 64. *Clostera*.var. **specifica** Dyar.1892.—Dyar, Can. Ent. vol. xxiv, p. 180. *Ichthyura*.

Deep smoky brown, the apical shade deep purplish brown, sharply limited internally by the white sigmoid bend of the fourth line, and becoming velvety black at this point; first and third lines free and nearly parallel, paler than the wing, not well defined. A s. t. row of diffuse dots. Thoracic patch velvety brown. Expanse 30 mm.

Hab.—Atlantic States northward and westward to Pacific Northwest.

The variety *specifica* is paler throughout.

Hab.—Rocky Mountain region to New Mexico.

M. alethe Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Can. Ent. vol. xxv, p. 122.

Uniformly dark brown, a darker shade on costa before apex. Lines very narrow, yellowish, pulverulent, the fourth white on costa. S. t. dots distinct on a uniformly colored ground, straight. Expanse 30 mm.

Hab.—California.

M. brucei Hy. Edwards.1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Ichthyura*.

Pale ash-gray, the lines faintly yellowish. A deep smoky brown shade obtains over the space between the third and fourth lines, and also subapically; fourth line widened and white on costa, the rusty patch outside of it very obscure. S. t. waved row of dots very distinct. Secondaries darker than fore wings and strongly contrasting. Expanse, 22 mm.

Hab.—Northern Atlantic States to the Rocky Mountains.

M. multnoma Dyar.1892.—Dyar, Can. Ent. vol. xxiv, p. 179. *Ichthyura*

Deep smoky brown with a purplish tint, the lines yellowish. The fourth line very indistinctly widened on costa. Subapical patch rusty-red, distinct, triangular. S. t. dots very obscure. Secondaries concolorous with fore wings.

Hab.—The Pacific Northwest.

M. strigosa Grote.1882.—Grote, Bull. U. S. Geol. Surv. vol. vi, p. 582. *Ichthyura*.race **luculenta** Hy. Edwards.1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 10. *Ichthyura*.

Yellowish gray, shaded and blotched with olive-brown. Lines as in *apicalis*, but even more waved. A yellowish shade at base and subapically, irrorate with rusty-brown; more or less distinct longitudinal lines of smoky-black precede the s. t. dots, the one between veins 4-5 (v_3-v_2) most distinct. Thoracic patch faint, clouded.

Hab.—Northern Atlantic States.

The race *luculenta* is paler, and lacks the brown thoracic mark.

Hab.—Westward.

M. apicalis Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1058. *Ichthyura*.
vau Fitch.

1859.—Fitch, Rep. Ins. N. Y. v, p. 65. *Clostera*.
indentata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 352. *Ichthyura*.
ornata Grote and Robinson.

1868.—Grote and Robinson, Trans. Amer. Ent. Soc. vol. ii, p. 91. *Ichthyura*.
incarcerata Boisduval.

1868.—Boisduval, Ann. Soc. Ent. Belg. vol. xii, p. 86. *Clostera*.
 race **astoriae** Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 11. *Ichthyura*.

var. **bifuria** Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 167. *Ichthyura*.

Sordid white to ash-gray, the lines whitish. The second meets third at about median vein, while the fourth is undulate, widened and white at costa. A s. t. row of black dots preceded by a lead-colored shade centrally. An obscure lead-colored discal dot. The apical portion of the wing as far as vein 3 (viii_r) more or less overspread with ocherous or rusty brown. Secondaries whitish or gray, often with a mesial line. Thoracic mark deep brown. Expanse 25 mm.

Hab.—Atlantic States northward and westward, California and the Pacific Northwest.

The very pale form *astoriae* is found on the Pacific coast in Oregon, and a form very similar to it occurs in the central region from the Rocky Mountains westward. In the Sierras examples occur of a fine purplish tint constituting the var. *bifuria*.

M. inornata Neumoegen.

1882.—Neumoegen, Papilio vol. ii, p. 134. *Ichthyura*.

1893.—Packard, Ent. News vol. iv, p. 78.

Hab.—Southwestern United States to Mexico.

Closely allied to *M. apicalis*, from which it does not differ in markings. It is, however, larger and paler, more suffused with reddish, and lacks the dark streak on head and thorax.

M. inclusa Hübner.

1825.—Hübner, Zutr. ex. Schmett. vol. iii, p. 36. *Ichthyura*.
americana Harris.

1841.—Harris, Rep. Ins. Mass. p. 314. *Clostera*.

var. **inversa** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 352. *Ichthyura*.
palla French.

1882.—French, Can. Ent. vol. xiv, p. 33. *Ichthyura*.

Pale gray, irrorate with brown. Lines pale, quite straight, the outer white on costa. S. t. dots moderately distinct. Subapical patch ocherous or rusty-brown, the apical and central parts of the wing shaded with olivaceous brown. Secondaries brownish gray, with an irregular mesial line. The variety *inversa* is darker, usually smaller, with the subapical patch more obscured.

Hab.—Atlantic States westward.

M. jocosus Hy. Edwards.1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 10. *Ichthyura*.

1893.—Packard, Ent. News vol. iv, p. 79.

"Brownish fawn-color," marked as in *inclusa*, but fainter and without white on the fourth line at costa.

Hab.—Florida.

[This may prove to be a varietal form of *inclusa*, as suggested by Dr. Packard.]

Genus **Gluphisia** Boisduval.

1829.—Boisduval, Ind. Meth. p. 56.

Synopsis of Species.

With a yellow (or black) central band on primaries more or less distinct.

Markings distinct.....**septentrionalis**.

Markings confused and irrorate.....**formosa**.

Pale, with no distinct yellowish markings.....**albofascia**.

G. septentrionalis Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1038.

clandestina Walker.

1861.—Walker, Can. Nat. and Geol. vol. vi, p. 36. *Dasychira*.

trilineata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 355. *Gluphisia*.

race **ridenda** Hy. Edwards.●

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.

race **quinquelinea** Dyar.

1892.—Dyar, Ent. News vol. iii, p. 158.

Dark gray; basal t. a. and t. p. lines black, waved. Basal and median spaces sordid ochreous in ♂, overspread with metallic black scales in ♀. Secondaries dark gray. Expanse 25 mm.

Hab.—Atlantic States westward.

The race *ridenda* is much paler throughout.

Hab.—Rocky Mountains westward.

The race *quinquelinea* is dark, the ochreous markings obsolete, and middle band evident between t. a. and t. p. lines.

Hab.—Pacific Northwest.

G. formosa Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.

Marked as in *trilineata*. The marks are confused and largely reduced to irrorations, while the color is pale. Base and median space shaded with yellowish. Expanse 25 mm.

Hab.—Central United States to Mexico.

G. albofascia Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 12.

wrightii Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.

var. **rupta** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 12.

Ground color sordid white, the black marks, therefore, more contrasted. Base and median space faintly yellowish ocher; marks variable, basal t. a. and s. t. lines in black, pulverulent, sometimes partly lost. Between these bands are heavy black, transverse, pulverulent shades of variable distinctness. Secondaries white powdered with black. Expanse 30 mm.

Hab.—Utah to Southern California.Genus **Eumelia** Neumoegen.

1893.—Neumoegen, Can. Ent. vol. xxv, p. 25.

|| *Melia* Neumoegen.

1892.—Neumoegen, Can. Ent. vol. xxiv, p. 225.

Synopsis of Species.

A yellow angular discal dot.....**severa**.
 No discal dot.....**lintneri**.

E. severa Hy. Edwards.1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 167. *Gluphisia*.var. **danbyi** Neumoegen.1892.—Neumoegen, Can. Ent. vol. xxiv, p. 225. *Melia*.race **avimacula** Hudson.1891.—Hudson, Ent. News vol. ii, p. 165. *Gluphisia*.var. **slossonii** Packard.1893.—Dyar, Ent. News vol. iv, p. 35. *Ceruridia*.

1893.—Packard, Psyche vol. vi, p. 502.

Blackish gray, basal line faint, t. a. line black, t. p. line fainter or obsolete. A median shade more or less distinct. S. t. line of confluent spots; an ochreous yellow shade at base, in lower half of median space and sometimes also bordering s. t. line. A yellow point on median vein at base, and an angular yellow discal mark. In some specimens the yellow markings become chestnut-brown. The species is variable. Expanse 35 mm.

Hab.—Mountains of California northward, where it runs into the variety *danbyi*, in which the markings are obscured.

The race *avimacula* lacks the yellow shades at s. t. line, the color is lighter, and the t. a. line less dentate on the veins.

Hab.—Northern New York and New England.The variety *slossonii* has the yellow shading replaced by black.*Hab.*—Northern New York.**E. lintneri** Grote.1877.—Grote, Can. Ent. vol. ix, p. 85. *Dasychira*.1891.—Dyar, Can. Ent. vol. xxiii, p. 159. *Gluphisia*.

Pale gray, irrorate with black; marked as in *E. severa*, but no basal yellow dot nor discal mark, while the lines are more obscure and the median yellowish shade spreads upward.

Hab.—Northern New York.

Genus **Pheosia** Hübner.

1822?—Hübner, Verz. bek. Schmett. 145.

Leiocampa Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. vol. ii, p. 24.

Synopsis of Species.

A silvery white line at base of vein 1 (anal vein).

Central part of fore wing white..... **dimidiata.**

Wing centrally smoky-black **portlandia.**

Without silvery-white mark.

Uniform blackish gray, with black discal dot..... **simplaria.**

Primaries brown at base; no discal dot **basitriens.**

P. dimidiata Herrich-Schäffer.

1856.—Herrich-Schäffer, Samml. Auss. Schmett, vol. i, fig. 515. *Drymonia. rimosa* Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 358. *Pheosia. californica* Stretch.

1872.—Stretch, Zyg. and Bomb. N. A. p. 116.

Thorax brownish gray, the patagia and collar outlined with black; abdomen gray, brownish at base. Wings white, shaded with brownish black at apical third of costa and along internal margin, the latter shade becoming brown toward centre of wing. A white line on vein 1 (anal vein) at base, below which is a dull ochereous patch. T. p. line indicated in white on costa and margin. A black patch at anal angle of hind wings. Expanse 55 mm.

Hab.—Atlantic States westward; California.

P. portlandia Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 168.

descherei Neumoegen.

1892.—Neumoegen, Can. Ent. vol. xxiv, p. 227. *Notodonta.*

Deep smoky-black, the abdomen brown-black and hind wings smoky-white. The markings as in *dimidiata*, but the white parts are entirely obscured, except in an oblique subapical patch. The centre of the wing is brown, and the t. p. line is indicated in pale entirely across the wing.

Hab.—Pacific Northwest.

P. simplaria Graef.

1881.—Graef, Bull. Brook. Ent. Soc. vol. iii, p. 95. *Notodonta.*

Blackish gray. T. a. and t. p. lines black, distinct, waved. An oval, linear, discal dot in paler ring. A subterminal line of black dots obscure. Hind wings pale gray with white mesial band and blackish discal dot. Expanse 45 mm.

Hab.—Mountains of New York, and probably also of New England and northward.

P. basitriens Walker.1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1000. *Notodonta*.

Gray, the veins of fore wing outwardly lined with black. T. a. and t. p. lines converging at internal margin, black, slightly dentate, the t. p. line faint. Basal space including a brown streak which shades into ochreous below. A subterminal row of intervenular, blackish, diffuse spots. Hind wings white, shading into gray outwardly, with dentate mesial line. Expanse 45 mm.

Hab.—Northern Atlantic States.

Genus **Lophodonta** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 357.

Synopsis of Species.

Primaries partly shaded with ferruginous brown.....**ferruginea**.

Primaries with scattered ochre-yellow marks.....**angulosa**.

L. ferruginea Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 357.

Dark blackish brown; basal and outer half of median space shaded with ferruginous brown. T. a. and t. p. lines brown defined by white. A large white costal patch at end of cell. Subterminal line whitish. Secondaries whitish centrally in ♂, gray in ♀, the costal margin darker. A pale, broad, mesial, and narrow subterminal band, defined on costa. Abdomen liginous brown. Expanse 45 mm.

Hab.—Northern Atlantic States.

L. angulosa Smith and Abbott.1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 83. *Phalæna*.

Dark gray, marked as in *ferruginea*, but without any ferruginous shades. The basal space, t. a. and t. p. lines are marked with brownish ochre, while the costal patch is more obscure than in *ferruginea*.

Hab.—Atlantic States westward.

Genus **Lophopteryx** Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. vol. ii, p. 26.

L. capucina Linnaeus.1758.—Linnaeus, Syst. Nat. i, p. 507, N. 55. *Bombyx*.

camelina Linnaeus.

1758.—Linnaeus, Syst. Nat. i, p. 507, N. 56. *Bombyx*.

americana Harvey.

1877.—Harvey, Can. Ent. vol. ix, p. 95. *Lophopteryx*.

Bright brown; nervules interruptedly marked in very dark brown. T. a. line single, forming two approximate, teeth on cell dentate below median vein. T. p. line double, obliterate, with included paler shade which traverses the wing obliquely, marked on costal region; a series of ante-apical pale dots; a purplish brown s. t. shade. Median space diffused, shaded with purplish brown, more apparently so before outer line and inferiorly where the median lines approximate; a terminal brown line, interrupted on the veins, opposite to the extremities of which the exserted fringe is dark brown. Hind wings ochrey, with concolorous fringes becoming brown toward anal angle; a median pale shade,

which intersects at internal margin, a blackish patch. Beneath, yellowish immaculate, the dots on costa of primaries before apices repeated; fringes brown. Body rust-brown. Expanse 36 mm.

Hab.—Northern Atlantic States westward; Europe; Northern Asia. [We are indebted to Dr. Packard for the recognition of *L. americana* Harvey.]

Genus **Datana** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1060.

Synopsis of Species.

Outer margin of primaries distinctly excavate between the veins.

Color entirely smoky or blackish brown.....**angusii**.

Color yellowish brown or paler.

Discal spots faint or absent, size medium.

Color yellow-brown.....**ministra**.

Color testaceous.....**californica**.

Discal spots distinct, size large.....**drexelii**.

Outer margin indistinctly excavate, nearly entire in the ♂.

Color tawny brown or purplish.

Tawny brown, discal spots distinct, size large.....**major**.

More or less purplish, discal spots indistinct, size medium.

Thoracic patch reddish brown.

Fore wings dull whitish lilac, more or less covered with cinnamon-brown scales.....**palmii**.

Fore wings dark brown with a purplish flush.....**floridana**.

Thoracic patch ochreous.....**modesta**.

Color yellowish buff.

Thoracic patch tawny brown.....**perspicua**.

Thoracic patch as pale as thorax.....**robusta**.

Outer margin of primaries entire, or a little wavy in the ♀.

Primaries dark reddish brown, lines and fringe concolorous..**integerrima**.

Primaries luteous tawny, lines and fringe not concolorous.....**contracta**.

D. angusii Grote and Robinson.

1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 9.

1888.—Beutenmüller, Can. Ent. vol. xx, p. 135.

Deep smoky-brown throughout, costal margin of fore wings and outer edge darker; five blackish, narrow lines across the wing, the two outer ones contiguous; an oblique apical streak; discal dots faint or wanting. Head and two-thirds of thorax covered by a square or constricted, deep chocolate-brown patch.

Hab.—Northern Atlantic States westward.

D. ministra Drury.

1773.—Drury, Ill. Ex. Ent. vol. ii, pl. xiv, f. 3. *Phalæna*.

1888.—Beutenmüller, Can. Ent. vol. xx, p. 16. *Datana*.

Reddish brown, fore wings irrorate with brown scales, costal edge slightly brighter in tone, hind wings paler. The lines as in *angusii*. Thoracic patch deep red-brown, shading into ochreous brown on the head. Expanse 35—45 mm.

Hab.—Atlantic States westward.

D. californica Riley.

1890.—Dyar, Ent. Amer. vol. vi, p. 127.

Like *ministra* and *angustii* in markings, but very light in color, being clay-colored or testaceous.

Hab.—Coast region of California.

D. drexelii Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 25.

1890.—Dyar, Psyche vol. v, p. 418.

Reddish brown, with paler ground color, of the color of *ministra*. The costal third of wing is bright ochereous brown, contrasting. Lines as in the preceding species, but centrally in the cell is a round, deep brown discal dot and another elongate one on the cross-vein. Thoracic patches as in *ministra*, but the hind wings are darker. Expanse 40–50 mm.

Hab.—Northern Atlantic States.

D. major Grote and Robinson.

1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 12.

1890.—Dyar, Psyche vol. v, p. 415.

Dark reddish brown, darker than *ministra* or *drexelii*, and more evenly colored. The costal edge is not distinctly brighter in tone, and the hind wings are concolorous with the fore wings; marked as in *drexelii*. The outer margin is distinctly less scalloped than in any of the preceding species. In the ♂ it is nearly entire. Expanse 40–50 mm.

Hab.—Atlantic States.

D. palmii Beutenmüller.

1890.—Beutenmüller, Psyche vol. v, p. 299.

1890.—Dyar, Ent. Amer. vol. vi, p. 129.

1890.—Dyar, Ent. Amer. vol. vi, p. 181.

Chocolate-brown, the fore wings and posterior portion of thorax heavily overwashed with whitish lilac, leaving the lines and fringe deep brown. The lines have a tendency to become pulverulent and indistinct, so that the third and fourth are often very faint. Secondaries and abdomen pale brown, whitish, the secondaries with a satiny lustre. Thoracic patch deep brown, becoming ochereous on the head. Expanse 35–40 mm.

Hab.—Mountains of New York and Penna., Arkansas (Palm).

D. floridana Graef.

1880.—Graef, Bull. Brook. Ent. Soc. vol. iii, p. 37.

1881.—Roebele, Bull. Brook. Ent. Soc. vol. iv, p. 21.

1893.—Dyar, Psyche vol. vi, p. 573.

Closely allied to *palmii*, but less heavily overwashed with purplish; the lines are consequently more obscure. Secondaries darker.

Hab.—Florida to New York (Doll).

D. modesta Beutenmüller.

1890.—Beutenmüller, Psyche vol. v, p. 299.

Uniform deep brown, with an ochereous tinge like *floridana*, but without purplish tint. Lines obsolete, only the outer discernible, and that faint. Discal

dots almost black, a blackish shade at base and terminally. Secondaries brown, paler at base. Thorax dark brown, darker than the quadrate patch, which is ochereous brown, uniform. Expanse 50 mm.

Hab.—Florida.

D. perspicua Grote and Robinson.

1864.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. iii, p. 489.

1891.—Dyar, Can. Ent. vol. xxiii, p. 82.

Light ochre-yellow, not irrorate, the markings and fringe clear yellowish brown, distinctly contrasted. Lines 1 and 5 distinct, the others more obscure and disappearing costa-wards. Outer discal dot very large and spreading. Hind wings very pale straw color. Thoracic patch ochereous brown. Exp. 40—50 mm.

Hab.—Atlantic States westward to Montana.

D. robusta Strecker.

1878.—Strecker, Lep. Pt. 14, p. 131.

1890.—Dyar, Ent. Amer. vol. vi, p. 131.

Slightly duller yellow than *perspicua*, and heavily irrorate with brown scales. Lines as in *perspicua*, the median (cubitus) and internal (anal) veins marked with brown. Discal dots as in *perspicua*, but sharing in the somewhat grayish tint of the whole wing. Secondaries largely tinged with brown outwardly. Thorax creamy-buff, the patch pale ochereous or slightly brownish, frequently appearing brighter than the thorax. Expanse 45 mm.

Hab.—Texas.

D. integerrima Grote and Robinson.

1886.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 12.

1888.—Beutenmüller, Can. Ent. vol. xx, p. 134.

Dark reddish brown, usually without any purplish tint, slightly ochereous along costa. The lines are distinct and bordered outwardly by conspicuous pale shades. Discal dot obscure, as in *palmii* and *floridana*. Thoracic patch ochereous brown, darker posteriorly. Secondaries pale at base. Expanse 35—40 mm.

Hab.—Atlantic States westward.

D. contracta Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1062.

1890.—Beutenmüller, Ent. News vol. i, p. 144.

Light ochereous, slightly darker on costa of fore wings; irrorations and lines blackish, diffused and scattered, contrasting with the deep brown fringe. Discal dots rounded, moderately distinct, blackish.

Hab.—Atlantic States westward.

Genus **Nystalea** Guenée.

1852.—Guenée, Spec. Gén. Léop., Noct. vol. ii, p. 122.

N. indiana Grote.

1884.—Grote, Papilio vol. iv, p. 7.

Anterior part of thorax with a dull yellowish patch as in *Datana*, bordered by black; the rest gray. Fore wings much elongated; antennæ simple, ciliate, the cilia longer at base, a tuft on each joint at each side. Primaries cinereous,

paler on the disc, distinctly mottled; sub-basal line faint. T. a. and t. p. lines close together, straight, parallel, narrow, blackish brown, equidistant from the indistinct black discal ringlet. On veins 2-3 (v_{12} - v_{11}) near base, a black patch; another between veins 3-4 (v_1 - v_3) just outside t. p. line. Subterminal row of small black dots, two in each interspace, and terminal black shaded spots. Secondaries blackish, pale at base. Expanse 40 mm.

Hab.—Florida.

Subfamily HETEROCAMPINÆ.

Genus **Ianassa** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1101.

Xylinodes Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 366.

Phya Druce.

1887.—Druce, Biol. Cent.-Amer., Lep. Het. vol. i, p. 242.

Synopsis of Species.

Yellowish or sordid cinereous.....**lignicolor.**
Bright bluish cinereous.....**coloradensis.**

I. lignicolor Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1101. *Ianassa*.

virgata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 367. *Xylinodes*.

ligingera Walker.

1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 423. *Exæreta*.

Yellowish ash-gray, shading obscurely into wood color along internal margin. Markings all obscured and transformed into longitudinal strigose shades. A basal longitudinal line and black discal dot are moderately distinct. Abdomen and secondaries whitish, the latter with a gray patch at internal angle. Expanse 35-45 mm.

Hab.—Atlantic States.

I. coloradensis Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Ianassa*.

Bright ash-gray, not yellowish, shading along internal margin into wood color tinged with red-brown, more contrasting than in *lignicolor*.

Hab.—Colorado.

Genus **Dasylophia** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 362.

Synopsis of Species.

T. p. line on primaries distinct, arcuate, even.....**anguina.**
T. p. line obsolete superiorly; markings streaked longitudinally.

thyatiroides.

D. anguina Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. lxxxiv. *Phalæna*.

cucullifera Herrich-Schäffer.

1855.—Herrich-Schäffer, Samml. Auss. Schmett. vol. i, f. 381. *Drymonia*.

punctata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 420. *Heterocampa*.
cana Walker.

1869.—Walker, Char. Lep. Het. p. 17. *Edema*.

var. **punctagorda** Slosson.

1892.—Slosson, Can. Ent. vol. xxiv, p. 139. *Dasylophia*.

Ash-gray, with a large basal flesh-colored patch on primaries in the ♀. Wings shaded with brown, the veins obscurely lined; markings faint. T. p. line distinct centrally, pale, edged with black, even, arcuate. A basal longitudinal streak, which may extend outward, defining the pale median veins (v_3 , vii_1 and vii_2). Subterminally, two large, round, black spots between the median nervules. Secondaries pale in ♂, gray in ♀. Expanse 35 mm.

Hab.—Atlantic States.

The variety *punctagorda* is paler with white secondaries.

D. thyatiroides Walker.

1862.—Walker, Trans. Ent. Soc. Lond. (3) vol. i, p. 79. *Heterocampa*.
interna Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 363. *Dasylophia*.
tripartita Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 419. *Heterocampa*.
signata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxiii, p. 758. *Xylina*.

1891.—Smith, Can. Ent. vol. xxxiii, p. 121. *Dasylophia*.

Brownish, obscured, faintly longitudinally streaked. T. a. line pale, outlined by a black shade, straight, bent inward at internal margin. T. p. line distinct near internal margin, sharply bent outward; two black spots between median nervules contiguous to a pale, brown bordered s. t. line, which becomes bordered inwardly in the interspaces in an indefinite manner subapically. Secondaries gray. Expanse 40 mm.

Hab.—Northern Atlantic States.

Genus **Schizura** Doubleday.

1841.—Doubleday, Ent. vol. i, p. 59.

Oedemasia Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359.

Cælodasys Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 363.

Hatima Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450.

Synopsis of Species.

Transverse bands largely absent.

Size small (36 mm. or less), the brown shade along internal margin of primaries distinct.....**concinna**.

Size larger (40 mm. or more), this shade less distinct or absent.

Yellowish cinereous at apex, reddish shade moderately distinct...**eximia**.

Bright cinereous at apex; shade along internal margin yellowish or absent.

perangulata.

Transverse bands normally present.

Discal dot surrounded by a light cinereous space.

Scarcely any black shading on primaries..... **ipomœæ.**

Two long black dashes..... var. **telifer.**

Whole middle of wing black to outer margin..... var. **cinereofrons.**

Discal dot on the ground color.

Primaries pale green at extreme base **unicornis.**

Without green tints.

Discal dot lunate; size small.

Transverse lines distinct, black, coarsely undulate..... **apicalis.**

Lines faint, reddish, finely undulate **nitida.**

Discal dot round; size large..... **leptinoides.**

S. concinna Abbott and Smith.

1797.—Abbott and Smith, Lep. Ins. Ga. vol. ii, pl. 85. *Phalæna*.

semirufescens Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 424. *Edema*.

semirufescens Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450. *Hatima*.

1892.—Smith, Can. Ent. vol. xxiv, p. 135.

salicis Hy. Edwards.

1877.—Hy. Edwards, Proc. Cal. Acad. Sci. vol. vii, p. 121. *Heterocampa*.

riversii Behr.

1890.—Behr, Proc. Cal. Acad. Sci. (2) vol. ii, p. 94. *Dryocampa*.

Apical portion of wing cinereous, centre yellowish in ♂, dull olive-brown in ♀; region along internal margin dark ferruginous brown; markings absent, or very faint, veins blackish. A black basal dash and round discal dot, the latter sometimes absent. Secondaries white in ♂, cinereous gray in ♀, with a gray spot at anal angle. Expanse 33—36 mm.

Hab.—Atlantic States westward; California; Idaho (Packard).

S. eximia Grote.

1881.—Grote, Bull. U. S. Geol. Surv. vol. vi, p. 275. *Oedemasia*.

Thorax gray, patagia tipped with brown. Resembles *concinna*, but is larger and the wings more pointed. The wing is more shaded with gray, less distinctly yellowish, centrally in the ♂, so that the sexes are closely similar. The red shade along internal margin is less distinct, being partly blackish. Transverse maculations absent. Discal dot minute or absent. Secondaries pale grayish in ♂, darker in ♀, with indications of a whitish band and dark spot at anal angle. Expanse 42—50 mm.

Hab.—Northern Atlantic States, Pacific Northwest.

S. perangulata Hy. Edwards.

1882.—Hy. Edwards, Papilio vol. ii, p. 125. *Oedemasia*.

Thorax as in *eximia*; costal half of wing toward apex bright gray, the veins black lined, subapical black dashes present; lower half of wing and base yellowish, slightly marked. Transverse lines obsolescent, the t. a. discernible, blackish, lunulate, pulverulent. T. p. line represented by some reddish marks. A black basal dash; discal dot lunate, followed by a black cloud. Secondaries white, with black spot at internal angle. Rather variable, the wing sometimes quite uniformly colored.

Hab.—Colorado, Utah.

S. ipomœæ Doubleday.

1841.—Doubleday, Ent. vol. i, p. 60.

biguttatus Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 365. *Cælodasys confusa* Walker.1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 413. *Drymonia ducens* Walker.1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 417. *Heterocampa corticea* Walker.1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 418. *Heterocampa compta* Walker.1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 418. *Heterocampa nigrosignata* Walker.1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 422. *Heterocampa*.var. **telifer** Grote.1880.—Grote, N. Am. Ent. vol. i, p. 99. *Cælodasys*.var. **cinereofrons** Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 366. *Cælodasys ustipennis* Walker.1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 421. *Heterocampa*.

Gray along costa; the region along internal and outer margins nearly to apex suffused with reddish. Lines indistinct, pale, indicated by black dots on the veins. Discal mark narrow, lunate, situated in a light cinereous space and surrounded by a black cloud; veins indicated in black. Secondaries white in ♂, dusky at margin, gray in ♀. A black shade may overspread the whole centre of the wing from base to outer margin. Expanse 30—45 mm.

Hab.—Atlantic States westward; Pacific Northwest.**S. unicornis** Abbott and Smith.1797.—Abbott and Smith, Lep. Ins. Ga. vol. ii, pl. 86. *Phalæna edmandsii* Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 364. *Cælodasys humilis* Walker.1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 425. *Edema conspecta* Hy. Edwards.1875.—Hy. Edwards, Proc. Cal. Acad. Sci. vol. v, p. 366. *Heterocampa*.

Purplish cinereous, tinged with sea-green at base and along costa of primaries, frequently with a buff colored, apical patch in the ♂. Discal dot black, linear. Transverse lines faint, blackish, lunulate, the t. p. line succeeded by a reddish shade. A series of subterminal, interspatial dashes, followed by white marks, most distinct between the median venules (v_3 — v_{11}). Secondaries whitish in ♂, dark gray in ♀. Expanse 30 mm.

Hab.—Atlantic States; California.**S. apicalis** Grote and Robinson.1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 15. *Cælodasys*.

Purplish ash-gray; discal dot large, black, lunate, followed by a black cloud. T. a. and t. p. lines obscurely geminate, black, coarsely waved, the t. p. curved outward opposite the cell; lower half of wing clouded with brownish; a narrow black basal streak. Veins outwardly slightly black lined. Secondaries white in ♂, with black spot at anal angle, blackish in ♀, with central pale band. Expanse 30 mm.

Hab.—Northern Atlantic States.

S. nitida Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 360. *Oedemasia*.*badia* Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 361. *Oedemasia*.

1887.—Henshaw, Bull. 16th U. S. Dep't Agr. p. 43.

significata Walker.1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 421. *Heterocampa*.

Pale dull ochereous, cinereous along costa; base and a large patch at internal angle reddish brown. Discal mark black, usually distinct, followed by a black cloud. Lines obscure, reddish brown, interspaceially lunate; veins black lined subapically; an apical white patch and a series of subterminal white dashes contiguous to a terminal row of black points. Thorax blackish with a tinge of red. Expanse 30 mm.

Hab.—Atlantic States.**S. leptinoides** Grote.1864.—Grote, Proc. Ent. Soc. Phil. vol. iii, p. 323. *Heterocampa*.*mustelina* Packard.1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359. *Cecrita*.*

Dark cinereous, slightly reddish along internal margin and whitish at apex. Discal dot round, black, minute. Lines obsolescent, blackish, geminate, undulate; veins darker. Secondaries whitish in ♂, dark gray in ♀. Expanse 35–40 mm.

Hab.—Atlantic States westward.Genus **Euhyparpax** Beutenmüller.

1893.—Beutenmüller, Bull. Am. Mus. Nat. Hist. vol. v, p. 19.

E. rosea Beutenmüller.

1893.—Beutenmüller, Bull. Am. Mus. Nat. Hist. vol. v, p. 19.

Pinkish ochereous, inclining to rose color; a narrow, undulated, darker colored t. p. line with faint, pale, discal spot and dark subterminal spots. Secondaries rose colored, fringe paler. Expanse 40 mm.

Hab.—Colorado.Genus **Heterocampa** Doubleday.

1841.—Doubleday, Ent. vol. i, p. 55.

Lochmæus Doubleday.

1841.—Doubleday, Ent. vol. i, p. 57.

Tadana Walker.

1855.—Walker, Cat. Brit. Mus. vol. v, p. 990.

Synopsis of Species.

Size large (expanse 40 mm. or more).

Discal streak lunate.

Wings varied with whitish, especially subapically.

With conspicuous greenish gray shades.....**astarte.**More uniformly cinereous.....**obliqua.**Wings very uniformly dark gray.....**lunata.**

Wings without distinct white subapical shade, sub-basal field dark.

umbrata.Discal mark ovate or reniform.....**manteo.**

Size small (expanse 35 mm. or less).

Wings greenish or gray, with white subapical shade.....**subrotata.**Wings evenly gray, without any white shade.....**belfragei.**

* Dr. Packard has kindly given us this synonymy. But the larva described by Prof. G. H. French (Can. Ent. vol. xviii, p. 92), is not that of *S. leptinoides*.

H. astarte Doubleday.

1841.—Doubleday, Ent. vol. i. p. 57.

varia Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1023.

menas Harris.

1869.—Harris, Ent. Corr. p. 134. *Stauropus*.

chapmanii Grote.*

1881. Grote, Bull. U. S. Geol. Surv. vol. vi, p. 258.

Olivaceous gray, appearing paler than *obliqua*; thorax, basal space and a shade extending from median space subapically, whitish green, clouding the white subapical shade. Lines black, essentially as in *obliqua*, the subapical portion of the subterminal line more consolidated and narrower.

Hab.—Florida.

H. obliqua Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 368.

var. ***trouvelotii*** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 369.

brunnea Grote and Robinson.

1867.—Grote and Robinson, Trans. Am. Ent. Soc. vol. i, p. 180.

Dark cinereous; transverse lines obscured, but the wing more or less varied with ochraceous, or ferruginous and white patches. Of the white patches, the most conspicuous is an oblique subapical one. Discal mark black, lunate, often linear. Secondaries white in ♂, smoky outwardly in ♀. In the form *trouvelotii*, the white marks are absent, the t. a. line moderately distinct, and the apical third of wing covered by a deep brown shade. Expanse 45–50 mm.

Hab.—Atlantic States.

H. lunata Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 44.

plumosa Hy. Edwards

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 14. *Lophodonta*.

dardania Druce.

1887.—Druce, Biol. Cent.-Am. vol. i, p. 237, pl. xxv, f. 4. *Heterocampa*.

Very uniform dark gray, darker in the basal field and sometimes discolored, recalling the ornamentation of *Notodonta*. Transverse lines obsolete. Discal mark black, lunate. Secondaries grayish, especially along costal border. Expanse 40 mm.

Hab.—Colorado to Arizona, Mexico.

H. umbrata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1023.

semiplaga Walker.

1861.—Walker, Can. Nat. and Geol. vol. vi, p. 37.

1882.—Grote, New Check List, p. 19.

1892.—Smith, Can. Ent. vol. xxiv, p. 136.

pulverea Grote and Robinson.

1867.—Grote and Robinson, Trans. Am. Ent. Soc. vol. i, p. 185.

athereo Harris.

1869.—Harris, Ent. Corr. p. 134, note. *Stauropus*.

Thorax pale greenish gray, with a blackish line on collar. Primaries pale olivaceous ashen, shaded with darker greenish gray from the basal line to the

* Dr. Packard writes us: "On seeing Mr. Thaxter's type of *H. chapmanii* I think it must be for the present regarded as distinct from *astarte*." We have no personal knowledge of this form.

lunate discal mark and below median vein out to subterminal line. Transverse lines blackish, geminate, lunulate, not very well defined. Subterminal line distinct, blackish, broad, composed of well fused, diffuse, subtriangular spots, nearly straight. Abdomen in ♀ with dark dorsal tufts. Secondaries dusky, with paler mesial band. Expanse 40—50 mm.

Hab.—Atlantic States.

H. manteo Doubleday.

1841.—Doubleday, Ent. vol. i, p. 58. *Lochmæus*.

cinerascens Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 991. *Tadana*.

subalbicans Grote.

1863.—Grote, Proc. Ent. Soc. Phil. vol. ii, p. 336. *Heterocampa*.

Cinereous gray; secondaries slightly brownish, dark in both sexes. T. a. and t. p. lines blackish, geminate, obscure, filled in with whitish in ♀. Discal spot black, kidney-shaped, sometimes obscure. Subterminal line whitish, faint. A terminal series of black dashes. Expanse 40 mm.

Hab.—Atlantic States.

H. subrotata Harvey.

1874.—Harvey, Bull. Buff. Soc. vol. i, p. 263.

celtiphaga Harvey.

1874.—Harvey, Bull. Buff. Soc. vol. i, p. 263.

superba Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 121.

Bright olivaceous or cinereous; basal line black, distinct; transverse lines geminate, black, including a light brown shade; a semilunar discal streak followed by a pale space reaching t. p. line. Subterminally the wing is whitish, relieving the irregular disconnected subterminal line, which appears as black interspaceal streaks. A narrow terminal line. Expanse 18—34 mm.

Hab.—Southern States to Texas.

H. belfragei Grote.

1879.—Grote, Can. Ent. vol. xi, p. 209.

Uniform ash-gray, faintly brownish; basal line black. T. a. and t. p. lines geminate, obscure, paler centrally. Discal dot lunate, black. Subterminal line transformed into two brown-black, oblique dashes from veins 7-4 (iii₅-v₃) and 4-1 (v₃-ix). Secondaries white; a terminal brown line. Thorax dark gray. Expanse 35 mm.

Hab.—Texas.

Genus **Cecrita** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 992.

Seiroidonta Grote and Robinson.

1868.—Grote and Robinson, List. Lep. N. Am. p. 1.

Synopsis of Species.

Dull greenish; transverse lines purplish brown, geminate, lunulate. **biundata**.
Whitish, clouded with black; transverse lines faint..... **guttivitta**.
Cinereous, with black, geminate, angular, transverse lines..... **bilineata**.

C. biundata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1025. *Heterocampa*.

olivatus Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 371. *Lochmæus*.

viridescens Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 416. *Stauropus*.
mollis Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 422. *Heterocampa*.

Greenish cinereous; transverse basal, t. a. and t. p. lines purplish geminate, lunulate, filled in with light brown. Discal mark brown linear; a purplish cloud below it. Subterminal, purplish, intervenular, rounded spots. Secondaries cinereous, with pale mesial line. Expanse 34--40 mm.

Hab.—Atlantic States.

C. guttivitta Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 992.

albiplaga Walker.

1856.—Walker, Cat. Brit. Mus. Pt. vii, p. 1748.

mucorea Herrich-Schäffer.

1856.—Herrich-Schäffer, Ausser. Schmett. vol. i. f. 514. *Drymonia*.

harrisii Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 365. *Cælodasys*.

indeterminata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, Pt. 413. *Drymonia*.

? *doubledayi* Scudder.

1869.—Scudder, Harris' Ent. Corr. 134, note, sp. 3. *Heterocampa*.

Whitish gray, with an olivaceous tinge; pale toward apices. Discal dot obscure, linear, surrounded by a whitish space; markings very faint or absent, except the blackish subterminal spots, which are very distinct in the ♀. Base of primaries or whole wing more or less clouded with black. Secondaries grayish, darker in ♀. Expanse 40 mm.

Hab.—Atlantic States.

C. bilineata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359.

turbida Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 419. *Heterocampa*.

associata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 426. *Edema*.

ulmi Harris.

1869.—Harris' Ent. Corr. pp. 245, 302. *Notodonta*.

Male light cinereous, tinged with blackish. A black basal dash; t. a. and t. p. lines black, geminate, angulated on the veins. Discal dot black, sublunate, often faint. Subterminal line sinuate, whitish, continuous. Female more evenly colored and less distinctly marked. Expanse 30--40 mm.

Hab.—Atlantic States.

Genus **Misogada** Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 449.

M. cinerea Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 372. *Lochmæus*.

unicolor Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 373. *Lochmæus*.

marina Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 373. *Lochmæus*.

sobria Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450. *Misogada*.

Uniform ash-gray or faintly tinged with green; secondaries pale at base. T. p. line represented by a series of blackish venular dots, each succeeded outwardly by white, but these marks may be absent. T. a. and s. t. lines sometimes faintly indicated. Expanse 35--45 mm.

Hab.—Atlantic States westward.

Genus **Litodonta** Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 5.

L. hydromeli Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 5.

var. **fusca** Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 110.

Whitish cinereous, with a dull green tinge. Transverse basal, t. a. and t. p. lines, black, geminate, sublunulate, sinuate. Discal mark black, lunate. A purplish cloud fading into white subapically. A row of subterminal black spots preceded by orange scales; a narrow terminal line. Secondaries dusky. Expanse 34 mm.

Hab.—Southern States to Texas.

The variety *fusca* lacks the green tint, being cinereous gray.

Genus **Macrurocampa** Dyar.

1893.—Dyar, Ent. News vol. iv, p. 34.

M. marthesia Cramer.

1779.—Cramer, Pap. Exot. vol. iii, pl. 264, fig. B. *Noctua*.

tesella Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 370. *Lochmæus*.

turbida Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 407. *Cerura*.

elongata Grote and Robinson.

1867.—Grote and Robinson, Tr. Ent. Soc. Phil. vol. i, p. 184. *Heterocampa*.

Whitish, tinged with gray and pale greenish. T. a. line black, distinct, geminate, angular. Basal space filled in with dark shadings. Beyond this, the wing is pale, the marks obscured. A median blackish band and t. p. line indicated, the latter obscurely geminate, filled in with whitish. A blackish, transverse, discal mark. Subterminal spots shaded, blackish, connected into a band, most distinct in the interspaces between veins 2 and 3 (cell vii₁). Secondaries smoky, with whitish mesial band. Expanse 40 mm.

Hab.—Atlantic States.

Genus **Ellida** Grote.

1876.—Grote, Can. Ent. vol. viii, p. 125.

E. caniplaga Walker.

1856.—Walker, Cat. Brit. Mus. Pt. ix, p. 18. *Cymatophora*.

1893.—Smith, Bull. 44, U. S. N. M. p. 29. *Bombycia*.

transversata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 427. *Edema*.

gelida Grote.

1876.—Grote, Can. Ent. vol. viii, p. 125. *Ellida*.

1892.—Smith, Can. Ent. vol. xxiv, p. 135.

Ash-gray, collar blackish. Secondaries and abdomen pale brownish. T. a. line arcuate, broad, black, pulverulent and broken, followed by a more rigid line, which does not quite attain internal margin. Between these are traces of another line; all three very closely approximate. A sublunate black discal dot, surrounded by a white shade. Outer half of wing faintly clouded, showing traces of t. p. and s. t. lines, but very faintly. Expanse 30 mm.

Hab.—Northern Atlantic States.